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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,472	02/28/2002	Tomowaki Takahashi	4641-62398	3196

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EXAMINER

NGUYEN, THONG Q

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 09/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

10/086,472

Applicant(s)

TAKAHASHI, TOMOWAKI

Examiner

Thong Q. Nguyen

Art Unit

2872

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Peri d f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2002 and 16 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 08/877,920.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The present Office action is made in response to the Pre-Amendments (Paper Nos. 2 and 4) filed on 2/28/2002 and 5/16/2002.

Priority

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 08/877,920, filed on June 18, 1997.

Drawings

3. The drawings contain seven sheets of figures 1(a)-8 were received by the Office.
4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the feature concerning the laser for illuminating the reticle as recited in each of claims 27 and 35 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 20-35 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for use an optical imaging system having a catadioptric system for forming an intermediate image of an object, and a refractive system for forming an image of the intermediate image wherein the refractive system comprises an aspheric lens surface, does not reasonably provide enablement for use an optical imaging system having a catadioptric system for forming an intermediate image of an object, and a refractive system for forming an image of the intermediate image wherein at least one of the catadioptric system and the refractive system comprises an aspheric lens surface. Applicant should note that the terms "at least one" could be include two, three, four, etc.... The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.
8. Claims 21 and 29 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for use an optical system having a catadioptric system and a refractive system wherein the image-side numerical aperture is 0.6, does not reasonably provide enablement for use an optical system having a catadioptric system and a refractive system wherein the image-side numerical aperture is at least 0.6. Applicant should note that the terms "at least 0.6" could be include the value of 1.0

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or 15.0, etc... The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

9. Claims 22 and 30 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The disclosure, as originally filed, does not provide support for the feature as recited in each of claim 22 and 30. In particular, the specification does not teach that the image height on the surface (or substrate) is at least 10 mm.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claim 30 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 30 is indefinite because the feature "the substrate" (lines 1-2) lacks a proper antecedent basis.

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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13. Claims 20-22 and 25-26, as best as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Palmer (U.S. Patent No. 4,714,307)

Palmer discloses an optical device comprises a catadioptric system and a refractive system. The catadioptric system comprises at least one mirror and one lens for forming an image of an object, and the refractive system comprises three lens elements for forming an image of the intermediate image to be viewed/observed by a user. In column 3, lines 44-47, Palmer suggests that the mirror and lens surfaces can be made as aspheric surfaces.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 20 and 25-26, as best as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Moskovich (U.S. Patent No. 4,971,428, of record) in view of Palmer (U.S. Patent No. 4,714,307)

Moskovich discloses an optical device having a catadioptric system and a refractive system. The catadioptric system comprises at least one mirror for forming an intermediate image, and a refractive system for forming an image of the intermediate image. It is noted that Moskovich does not disclose that one of the catadioptric system and refractive system having one aspheric surface for correcting the image aberration.

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However, the use of at least one aspheric surface in a system having a catadioptric system and a refractive system for correcting the image aberration is known to one skilled in the art. Palmer discloses an optical device comprises a catadioptric system and a refractive system. The catadioptric system comprises at least one mirror and one lens for forming an image of an object, and the refractive system comprises three lens elements for forming an image of the intermediate image to be viewed/observed by a user. In column 3, lines 44-47, Palmer suggests that the mirror and lens surfaces can be made as aspheric surfaces. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the system provided by Moskovich by using at least one aspheric surface for the mirror and lens as suggested by Palmer for the purpose of increasing the ability of image correction.

Double Patenting

16. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

17. Claims 20, 23, 25-28, 31 and 33-35, as best as understood, are rejected under the judicially created doctrine of obviousness-type double patenting as being

54 48 41 36 } no special feature for aspheric surface.
 53 49 42 37 }
 51 45 38 }
 52 46 39 }
 50 47 }
 (40) 43 44 } Non-overlaid. (See claim 39)

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unpatentable over claims 1-16 of U.S. Patent No. 5,805,334 in view of Palmer (U.S.

Patent No. 4,714,307), *+ Schoenm-luc (5323263)*

Claims 1-16 of the Patent '334 issued to the same inventor of the present application disclose all of the elements as well as their structure as those of the device claimed except the feature that the catadioptric system and/or the refractive system has an aspheric surface. However, the use of at least one aspheric surface in a system having a catadioptric system and a refractive system for correcting the image aberration is known to one skilled in the art. Palmer discloses an optical device comprises a catadioptric system and a refractive system. The catadioptric system comprises at least one mirror and one lens for forming an image of an object, and the refractive system comprises three lens elements for forming an image of the intermediate image to be viewed/observed by a user. In column 3, lines 44-47, Palmer suggests that the mirror and lens surfaces can be made as aspheric surfaces. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the system as claimed in claims 1-16 of the Patent '334 by using at least one aspheric surface for the mirror and lens as suggested by Palmer for the purpose of increasing the ability of image correction.

18. Claims 20, 23-28 and 31-35, as best as understood, are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-16 of U.S. Patent No. 5,805,334 in view of Palmer (U.S. Patent No. 4,714,307) and Friedman (U.S. Patent No. 4,779,966, of record). *and Schen (of record)*

Claims 1-16 of the Patent '334 issued to the same inventor of the present application disclose all of the elements as well as their structure as those of the device claimed except the feature that the catadioptric system and/or the refractive system has an aspheric surface, and the feature that the refractive system has an aperture stop.

The use of at least one aspheric surface in a system having a catadioptric system and a refractive system for correcting the image aberration is known to one skilled in the art. Palmer discloses an optical device comprises a catadioptric system and a refractive system. The catadioptric system comprises at least one mirror and one lens for forming an image of an object, and the refractive system comprises three lens elements for forming an image of the intermediate image to be viewed/observed by a user. In column 3, lines 44-47, Palmer suggests that the mirror and lens surfaces can be made as aspheric surfaces. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the system claimed in claims 1-16 of the Patent '334 by using at least one aspheric surface for the mirror and lens as suggested by Palmer for the purpose of increasing the ability of image correction.

Regard to the use of an aperture stop, it is also noted that such use of an aperture stop in a refractive system is suggested to one skilled in the art as can be seen in the system provided by Friedman. In columns 3-4 and fig. 4, Friedman discloses a system having a front reflective system and a rear catadioptric system and teaches the use of a stop inside the refractive system. Thus, it would have been obvious to one

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skilled in the art at the time the invention was made to modify the combined product as provided in the claims 1-16 of the Patent '334 and Palmer by using a stop inside the refractive system as suggested by Friedman for the purpose of controlling the size/dimension of the light forming the image..

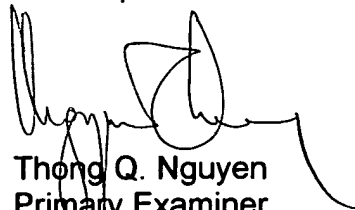
Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thong Q. Nguyen whose telephone number is (703) 308-4814. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on (703) 308-1687. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.



Thong Q. Nguyen
Primary Examiner
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September 6, 2002